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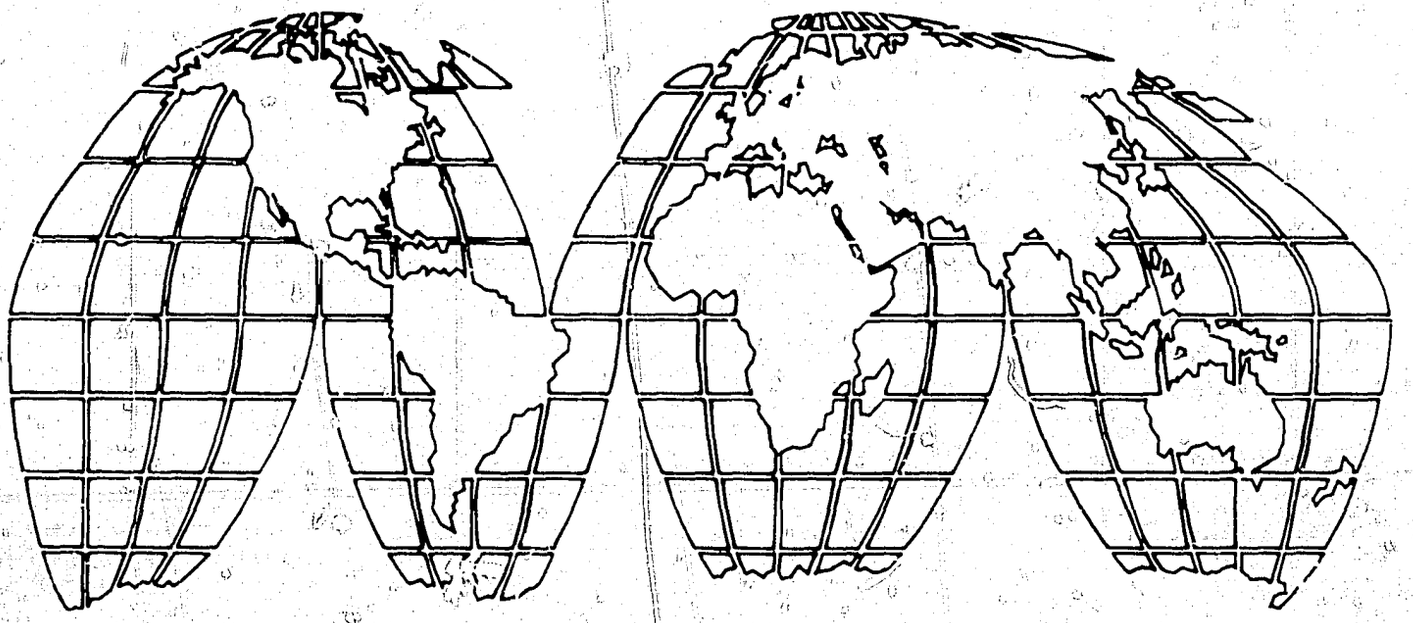
Sustainability of Development Programs: A Compendium of Donor Experience



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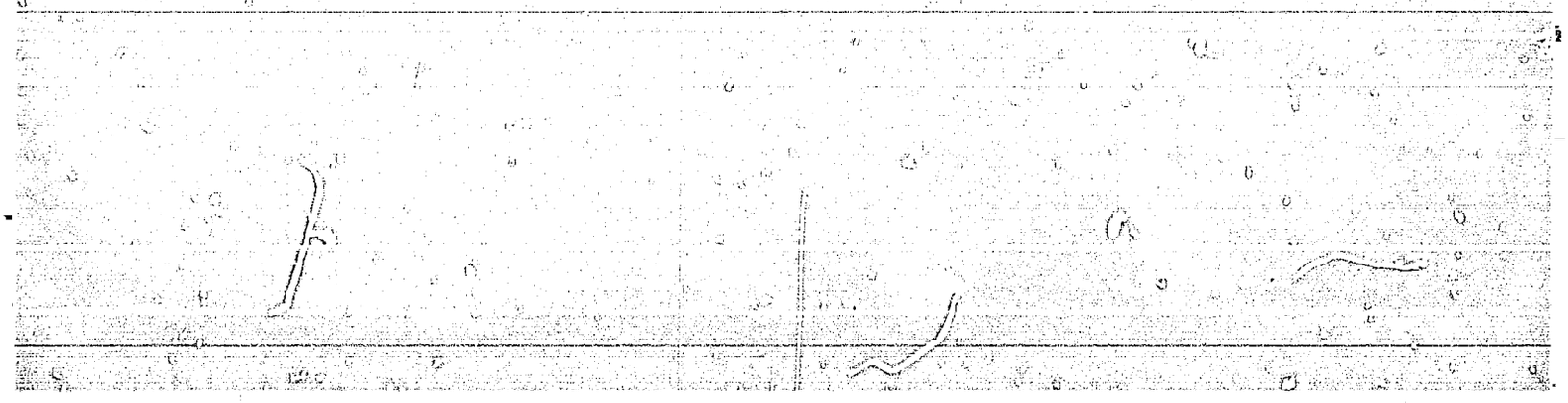

SUSTAINABILITY OF DEVELOPMENT PROGRAMS: A COMPENDIUM OF DONOR EXPERIENCE

A.I.D. PROGRAM EVALUATION DISCUSSION PAPER NO. 24

U.S. Agency for International Development

November 1988

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FOREWORD

The Center for Development Information and Evaluation (CDIE) first focused on the sustainability of A.I.D.'s projects as an issue requiring attention in the mid-1980s. In a review of the Agency's FY 1984 project evaluation reports, CDIE found that "although sustainability is one of the elements of A.I.D.'s institution building concept, the weight of evidence...suggests that this goal is not yet being pursued with adequate diligence, seriousness of purpose, or by means of clear enough criteria...." The review provided numerous examples from the evaluation reports of projects whose sustainability was in doubt, although it gave no statistical count of the magnitude of the problem. A subsequent review of Agency project evaluations in FY 1986 found that only 11 percent of the 212 projects evaluated had a strong probability of being sustained after the termination of U.S. assistance and 25 percent had poor prospects for sustainability.

CDIE also undertook several intensive assessments of sustainability in the health sector, focusing on the project level (e.g., a rural health development project in Lesotho and a mass-media health practices project in The Gambia) and on a broader program or sectoral level in selected countries (e.g., Honduras and Guatemala and several ongoing projects in Africa). These assessments concentrate on identifying the project characteristics and the country contexts affecting sustainability, offering some operational lessons on how to improve the sustainability of health projects. For example, a review of evaluation reports of 62 completed health projects found that more than half of the projects either had failed before project completion or were unlikely to be sustained following termination of U.S. support.

The seriousness and importance of the sustainability issue is now being recognized at the highest management levels of the Agency. For example, a key theme of a recent Congressional Presentation guidance message to the field from the Administrator was the necessity of ensuring the sustainability of A.I.D. programs and projects. Missions were asked to articulate how they intended to enhance the sustainability of current and planned activities and to give particular attention to current weaknesses in project sustainability identified in A.I.D. evaluations.

This paper, which has been prepared by the Development Assistance Committee's (DAC) Expert Group on Aid Evaluation, should be of considerable interest within A.I.D. since it consolidates not only A.I.D.'s experience with the sustainability of development programs but also the experience of 15 other donor agencies. The DAC paper identifies and promotes a better understanding of the numerous factors that impinge on the achievement

of sustainability, as evident from the review of donor evaluations. A careful reading of the lessons of the past should help project managers develop more effective approaches to achieving sustainable projects and programs. In order to broaden the distribution and awareness of these valuable lessons on sustainability, CDIE is reprinting the DAC paper under its Discussion Paper series.

W. Haven North
Associate Assistant Administrator
Center for Development Information and Evaluation
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Agency for International Development
November 1988

ACKNOWLEDGMENT

The Center for Development Information and Evaluation played a key role in synthesizing the materials on sustainability received from donor agencies and in drafting the paper for the Expert Group on Aid Evaluation of the Development Assistance Committee (DAC). Special contributions were made by Devorah Miller, who did the initial analysis and synthesis of the various donor reviews, and by Haven North, who as Chairman of the DAC Expert Group on Aid Evaluation guided the effort from the start and prepared the final version.

PREFACE

This compendium summarizes the results of an internal survey carried out by the Development Assistance Committee's (DAC) Expert Group on Aid Evaluation. The DAC consists of 18 member countries and the Commission of the European Communities. In addition, several multilateral agencies take part in the work of the group.

The main purpose of the compendium is to review the experience of donors with the design and implementation of sustainable development programs. The focus is on donor project interventions and how they facilitate the continuation of benefits after assistance is terminated. The subject of sustainability in development is, of course, fundamental to the development process, with or without external assistance. The term has broader applications, such as in sustainable agriculture, where it also encompasses the importance of preserving the ecological base for agricultural production. The phrase "sustainable development" is also being used to characterize the macroeconomic environment required to maintain long-term economic growth.

For the purpose of this review, the focus is on specific development programs assisted by donors and the factors that bear on the long-term sustainability of the benefits that flow from these programs. It necessarily concentrates on projects that have experienced sustainability problems and should not be interpreted as implying that the generality of aid projects are unsustainable. The aim is to promote an understanding of the range of factors that impinge on the achievement of sustainability as evident from evaluations. In this way, those concerned with the management of development programs and related external assistance will be able to design and monitor their projects more effectively and guide them toward long-term contributions to development. Each sustainability factor is discussed in a summary manner as each one is a complex subject in its own right that deserves more in-depth treatment. The group believes, however, that it is important to point the way in the hope that program managers will carry on with the task of determining the most efficient and effective ways to achieve the sustainability of their development programs.

1. INTRODUCTION

While much has been learned about how to implement development programs, guidance on how to ensure that these programs are sustainable is not so clear. Sustainability is in many ways the ultimate test of development efforts. It requires not only that a project be successful in achieving its objectives during the project life but also that the benefits it generates continue beyond the time of the donor's involvement--the durability of success. Sustainability is an issue because experience with development programs is rich with examples of donor-assisted efforts that did not bring about long-term improvements. Increasingly, donors are asking how they can get more lasting impacts from their programs.

The implications of sustainability are, of course, vital to the recipients of external assistance as well. It is the people in the developing countries who benefit from the achievements of sustained development. It is their resources and communities that will have to sustain these benefits over the long term. Explicit attention to sustainability can help developing country policy-makers and beneficiary communities address the longer term implications of their joint development efforts with donors.

Participants in the Development Assistance Committee (DAC) Expert Group on Aid Evaluation agreed at its January 1986 meeting that they should examine the issue of sustainability in their evaluations during 1986. Each participating agency was asked to include a set of questions relating to sustainability in the scopes of work for all evaluations to be conducted in 1986. The objective in incorporating the questions was to enable the donors to obtain a comprehensive review of their performance with regard to the sustainability of their programs.

Donors were asked to include the following questions:

-- What project benefits (or outputs) are to be (or were) sustained after donor funding ends (ended)?

-- Who in the developing country will benefit from project/program success? How and to what extent has a constituency been built through project implementation? (Active beneficiary participation often helps to ensure the relevance and sustainability of development programs.)

-- What developing country policies threaten the sustainability of the activity? How are they being mitigated? What policies will support sustainability?

-- What organizational, institutional, and financial capacities (such as management, technical expertise, cost-

recovery schemes--e.g., user fees--staffing and incentive structures, and maintenance systems) are being developed to continue project benefits? Will they be in place once donor financing ends? Will the organization have the capacity and flexibility to respond to changing conditions? What system has been developed to adopt (or adapt) new technologies?

-- What financial provision is being made for operations and maintenance and the replacement of capital equipment (e.g., recurrent and capital costs and foreign exchange requirements)?

-- Do projected benefits justify the continued investment of resources in the light of alternative opportunity costs and constraints?

-- What is an appropriate time period to ensure that the key conditions for sustainability will be created and operative?

This compendium identifies the most important factors affecting program sustainability based on the experience of donors, as revealed by their reviews of sustainability.

Section 2 is a summary reference to assist program managers to identify the principal points in the report to help guide their analyses of sustainability. Section 3 provides a definition of sustainability and discusses its components and other related terminology. Sections 4 through 11 elaborate on each of the factors of sustainability and provide brief illustrations. Section 12 discusses some design and evaluation questions and also comments on some steps donors are taking to ensure that the factors of sustainability are introduced in project operations. Appendix A presents in tabular form a way of looking at the interrelations among the various factors of sustainability.

Further work is necessary along the lines examined in this report. A first step could consist of a more formal agreement on the primary factors of sustainability. Reaching such an agreement should not be a problem because there is already a consensus on the substance, as is evident in several sections of this report. With such a list of factors in hand, it would be possible to employ concrete administrative instruments (e.g., standard terms of reference, reporting formats, evaluation scopes of work) at all stages of a project cycle, such as during project identification, feasibility studies, appraisals and financing, implementation, and monitoring and evaluation. Special attention could also be given to questions of sustainability as they apply

to specific sectors and to questions of the relative importance of the various factors.

2. SUMMARY REFERENCE FOR PROGRAM MANAGERS

We are providing a summary of this report on "The Sustainability of Development Programs" to assist program managers. This summary may be viewed as a reference on points that program managers should bear in mind during the selection, design, implementation, and evaluation of their development projects. The various considerations and factors presented should not be viewed as a set of fixed conditions to which projects should be rigidly held nor as conditions precedent to be set forth in project agreements. Rather they should be viewed as reminders of the importance of being attentive to factors affecting the sustainability of the benefits of development programs and the dynamic circumstances in which donor-assisted projects take place. They can serve as a type of "early warning system" for alerting program managers to factors that may affect the sustainability of the benefits that development programs are intended to generate.

2.1 Definition of Sustainability of Development Programs

A development program is sustainable when it is able to deliver an appropriate level of benefits for an extended period of time after major financial, managerial, and technical assistance from an external donor is terminated.

The following are key points in this definition:

-- The focus is on sustaining the flow of benefits--the results or impact of a program--that are relevant to a developing country's priority needs and the interests of decision-makers and beneficiaries.

-- Projects are specific interventions of donors for assisting a developing country to achieve sustainable benefits and maintain supporting activities and institutions.

-- The appropriate level of benefits and the time period will need to be defined in each instance, taking into account the country's development objectives, the initial investment and recurrent costs, and the creation of a permanent institutional capacity.

-- The termination of major external assistance assumes the developing country will provide the financial, technical, and managerial resources required to sustain the program. Continuing relations with external technical groups and supplementary financing of commodities may often be desirable.

2.2 Factors of Sustainability

From a broad consensus of the donors, the factors of sustainability fall under the following headings: government policies, management, organization and local participation, finance, technology, socioculture, environment and ecology, and external political and economic circumstances. The relative importance of the complex of effects and activity under each of these seven headings to the sustainability of development programs cannot be established except from an examination of each situation. Experience suggests that given a propitious political and economic setting, management and financial factors and government policies that express a long-term commitment to a program stand out as particularly important. The highlights of these seven factors that bear on sustainability follow.

2.2.1 Host Government Policies

Development projects operate within the context of national policies. Government commitment and policies that support project objectives are critical to the sustainability of development programs.

Developing country commitment to a program is one of the most commonly identified factors affecting sustainability. Analyses of this commitment take into account the agreement on objectives; the breadth and depth of support within the responsible organizations and from various political, bureaucratic, private, and local community groups; and the willingness to provide financial and personnel resources. Country commitment is also shaped by perceptions of mutuality of interests versus perceptions of predominantly donor-driven interests. Since commitment may vary over time and be affected by external factors and competing interests, it needs to be assessed on a continuing basis.

Developing country policies related to, for example, budget and foreign exchange, debt, prices and subsidies, interest rates, personnel practices, private sector participation, and sector

priorities are important in achieving program sustainability. Analyses of the effects of various government policies on program performance and sustainability are desirable and, where feasible, they should be applied in promoting policy reforms.

2.2.2 Management, Organization, and Local Participation

Management, organization, and local participation include considerations of managerial leadership, administrative systems, and the involvement of beneficiary communities.

Managerial leadership is key in developing sustainable programs. In many respects, sustainability and program management are two sides of the same coin. Program management encompasses responsibility for shaping policy and technological applications, setting goals, and mobilizing support from political leaders, complementary organizations, and beneficiaries, as well as directing internal administration. These management responsibilities are all essential to sustainable programs.

When project objectives are well matched with an organization's administrative capability--existing or expanding over time--sustainability is enhanced. Administrative systems for personnel and training, logistics and maintenance, information and feedback, and budget and finance will need to be developed to keep pace with program dynamics.

Where management and organization capabilities do not exist, or are inadequate, at the outset of a program, program managers will need to balance carefully the tensions between the pressures to achieve immediate results and long-term organizational development.

For many programs for which the benefits are directly associated with local populations, participation becomes critical to sustainability. Local participation in planning and implementation and in the key decisions affecting beneficiary welfare is a vital part of program activity. It is an integral part of continuing the flow of benefits after termination of a donor's assistance.

2.2.3 Financial Factors

Sustainability requires a flow of funds to cover operations, maintenance, and depreciation of the investments. Financial analyses to demonstrate that funds will be available via cost-

recovery provisions, commercial sales receipts, or direct appropriation of funds are an important part of a program manager's responsibilities in achieving sustainable development programs.

A major impediment to sustainability has been the inability to achieve continued, regular funding of annual operating costs. Experience shows that unless developing country financial support is phased in while external support is still being provided, such support is unlikely to be provided after donor support ends. Where the financing of recurrent costs is a chronic problem, donors may have to cover a portion of these costs for an extended period.

The prospects for sustainability are often greater for programs that do not depend on general public funds for all of their recurrent costs. User fees, community financing, and village contributions are desirable ways to shift some of the cost burden as well as establish the demand for services. An understanding by local communities of the nature and scale of these costs is important from the early stages of project activity.

In most developing countries, there are opportunities to use private enterprises to carry out development programs. The profit motive makes the private firms more sensitive to consumer demand, improving prospects for a sustained flow of benefits.

In general, the decentralization of development activity to local communities and private enterprises can strengthen commitment and help mobilize resources that otherwise would not be available.

2.2.4 Technological Factors

The technology chosen for the development program must be appropriate both to the developing country's financial and institutional capabilities and to the program goals. The technology must be accepted with mechanisms for its maintenance and renewal.

Advanced technology and expensive hardware that exceed an institution's financial or technical capacity are likely to be wasteful, ineffective, and ultimately unused. A simple technology that is precisely focused on the needs of the task at hand and is of uniform origin enables counterpart staff to master it quickly. Then, the important step to diffusion can take place. The costs of providing and maintaining the technology must not be excessive relative to benefits generated.

The development and application of "soft" technologies such as organizational structure and management, personnel, and training practices are important to facilitate the assimilation of new "hard" technologies.

Developing countries need to have the capability to develop and adapt new technologies as circumstances change. Technology needs to be examined, tested, and adapted to ensure its suitability in a particular developing country setting.

2.2.5 Sociocultural Factors

The integration of a program with the social and cultural setting of its beneficiaries and operating circumstances becomes especially important if the activity is not to be rejected after assistance ends.

Programs that attempt to function in ways that are inconsistent with local traditions or assume changes in behavior patterns have a high risk of failure.

The involvement of local communities and institutions can promote sustainability by building a base of support and fostering a sense of local ownership of the program. Working through local communities, which will take time, makes it easier to take advantage of traditional organizations and indigenous practitioners and benefit from their knowledge of what may or may not work in their society.

A lack of attention to women often parallels a lack of attention to target populations in general in designs and evaluations. Programs that hope to have a lasting impact and become integrated into the social fabric of a community must explicitly address women as principal actors.

Gender-specific data that help to define the differences between the roles, responsibilities, and opportunities of women and those of men can assist managers to strengthen the sustainability of program benefits.

2.2.6 Environmental and Ecological Factors

The ecological balance of many developing countries is being threatened by population pressures and poor management of natural resources. In some cases, unplanned development has accelerated the depletion of natural resources, threatening both the ability

of the environment to renew itself and program sustainability. Environmental policy and incentives are two areas in which actions can be taken to ensure that the benefits of programs are sustainable in a manner that is ecologically sound.

Regulatory controls are often required to prevent environmental abuse for individual profit.

Sustainability can be enhanced by encouraging changes in behavior patterns that adversely affect the environment. Ownership can be a strong incentive to conservation.

2.2.7 External Factors

Development programs operate within the context of existing political, economic, and cultural circumstances that are beyond their control and influence. Yet they can be deeply affected by these circumstances.

Political instability, or even frequent turnovers in political leadership, can undermine, if not destroy, the long-term growth most programs require to reach sustainability.

Economic instability also can be disruptive to program sustainability through the negative impacts of high inflation on budgets, foreign exchange shortages on capital equipment and spare parts, or declining world market prices. Countries at low levels of development can be particularly vulnerable.

Natural disasters can result in losses or diversions of critical resources and damage the economic base for development programs.

Where the development program or other forces cannot bring about changes in the external circumstances to create a more positive setting, coping mechanisms may need to be built into program management. Longer term assistance may also be necessary. Also, where programs and their benefits are deeply embedded in local institutions, their chances for coping with adverse circumstances and, thus, their sustainability are substantially improved.

2.3 Sustainability and Project Design and Evaluation

2.3.1 Project Choices

Donors can, in the first instance, make judgments about sustainability at the time of project selection. Problems of sustainability can be minimized by being alert to high-risk situations, such as the following:

-- Choice of country: Projects in countries with chronic and severe foreign exchange, debt, or budgetary problems are likely to have sustainability problems.

-- Choice of sector: Projects in some sectors are likely to be particularly prone to problems, such as recurrent cost financing in health and education projects, maintenance problems in transportation projects, or issues of political sensitivity in urban development projects.

-- Choice of region: Regions far from the main population centers may have difficulty recruiting and retaining staff and obtaining funds and supplies.

-- Choice of project within a sector: Projects directed to disadvantaged groups are likely to have problems unless they have strong and sustained support; projects with long payback periods may have problems with financial viability.

-- Choice of project design: Projects based on sophisticated technology are likely to require skills for operation and maintenance that are not readily available; complex, multicomponent designs may create insurmountable management problems.

These points on selection are not intended to discourage undertaking projects in problematic countries, sectors, or regions, but to alert program managers to potential problems of sustainability and the need for special adaptations to overcome them.

In situations in which nonproject assistance is the preferred form of assistance, sustainability may not be an objective. However, it is relevant when the objective is policy and institutional change to induce structural shifts in production necessary for sustained growth and when an administrative and institutional framework must be created to sustain the process of policy reform.

2.3.2 Design and Implementation Requirements

Measures to shape the design and implementation of projects to specifically promote sustainability should be incorporated in the project at the outset and evaluated periodically thereafter. Some considerations are the following:

-- Designers must set realistic goals in relation to expectations, local capabilities, complexity, and mutual acceptance.

-- Realistic projections of the time required to achieve results is one of the most important requirements for achieving sustainability. Initial estimates are almost always optimistic. It takes more time than most planners anticipate to introduce training, education, community participation, and other aspects of institutional development. For example, it may take 10-15 years to develop sustainable institutions.

-- Maintenance and support systems are frequently overlooked in project design and become stumbling blocks to effective implementation, particularly where program benefits must reach remote areas. Donors tend to meet these requirements during project implementation but fail to build up permanent capacities before assistance is terminated.

-- Continuity of funding, personnel, management, and technical assistance can contribute to sustainability, particularly through gradual phasing out of donor personnel and resources. Well targeted follow-up projects for supplementary equipment or training can also be helpful in easing the transition.

-- Flexibility is an important design quality permitting projects to adapt to unanticipated changes in the external circumstances and to learn from experience. Competent managerial leadership is central to guiding project adaptations.

-- Phased design, which views a project as part of a development process of several stages, can facilitate the achievement of immediate goals yet build a sound foundation of experience and participation.

-- Pilot projects enable implementation difficulties to be identified and corrected before the project is expanded

on a national scale. The larger the final effort is to be, the more important a pilot approach becomes.

2.3.3 Monitoring and Evaluation

Monitoring and evaluation, when integrated with practical management information systems, are essential to ensuring that the various factors affecting sustainability are identified and addressed by program managers. Sustainability issues are often inadequately treated in evaluation but should become standard requirements for the monitoring and evaluation process.

Since development projects are dynamic, issues of sustainability require attention throughout the life of the project. Some form of warning system of periodic analyses and reports is desirable to alert program managers to factors affecting program sustainability.

The advancement of the sustainability of development programs requires close collaboration of donors and developing country counterparts in design and implementation and in monitoring and evaluation of activities at all stages of a program's evolution.

3. DEFINITIONS OF SUSTAINABILITY

3.1 General Definition

While there is no universally accepted definition, in general terms sustainability is the survival of projects and programs after an initial period of investment--financial, physical, or technological. In international development assistance, sustainability refers to the continuation of projects and programs after the termination of assistance from an external donor. The concept, however, must be expressed more precisely if managers of development are to understand what is required during the investment period to achieve sustained development activity. To that end, the following definition provides a more explicit basis for discussing the characteristics of the sustainability of development programs.

> A development program is sustainable when it is able to deliver an appropriate level of benefits for an extended period of time after major financial, managerial,

and technical assistance from an external donor is terminated.

A full appreciation of this definition calls for an elaboration of the phrases "development program," "appropriate level of benefits," "extended period of time," and "major financial, technical, and managerial assistance from an external donor."

3.1.1 Development Programs and Projects

The words "program" and "project" are often used interchangeably in discussions of development and development assistance. Although the words are not always synonymous, the distinctions between them can be overdrawn. The definition of "sustainability" uses the word "program" rather than "project" to better capture the sense of the collective objectives of development projects.[1] Thinking in terms of program objectives can enhance sustainability by focusing attention on longer term actions and on their relevance to a country's development problems. Projects tend to lead to an emphasis on specific problems and outputs. Programs help strengthen problem-solving capabilities that are needed for sustainability, that is, the process whereby host countries assume responsibility for their own development.

It is helpful in the context of sustainability to think of aid projects as specific interventions designed to achieve discrete objectives in a limited period of time. They are donors' principal mechanisms for assisting a developing country to achieve sustainable development programs.

Not all donor projects have sustainability as an objective. Some research activities, relief projects, or commodity supply programs are concerned only with specific or short-term results (e.g., the findings of the research or the meeting of emergency needs or current operations requirements). But even in these

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[1]White defines development programs as having the following characteristics: (1) a connection to an ongoing host country organization, (2) continuation over time, (3) an ongoing system for delivering services, (4) systems of activities and services designed for different settings, and (5) a substantive policy identity (Louise White, Creating Opportunities for Change: Approaches to Managing Development Programs, A.I.D. Bureau for Science and Technology Study Series on Development Management, 1987, pp. 8-11).

cases, the question about what is to happen after project assistance ends should be asked.

For most projects, however, sustainability is an implicit goal, and donors and recipients expect and assume that some aspect of the supported activity will continue. Failure to make sustainability explicit as part of project design and implementation can lead to a loss of the flow of benefits that it was assumed would continue.

3.1.2 "Sustainable" Versus "Sustained"

The definition given above refers to a program as being sustainable rather than sustained. The former is a matter of judgment; the latter is a matter of fact. To establish the fact that a program has been sustained, it is necessary to return to a project some years after donor funding has ended. The problem is that for most donor projects, the postproject evaluation data needed for such an analysis are not available. In addition, decisions about new and ongoing projects must often be made before existing projects or programs of interest are completed. Therefore, the word "sustainable" is used in the definition and refers to the expected outcome or flow of benefits being successfully sustained.

3.1.3 Appropriate Level of Benefits for an Extended Period of Time

An essential component of sustainability is the objective of creating development benefits--results or impact--during and after the life of the aid project. The phrase "an appropriate level of benefits" is thus central to the broad aims of development. The determination of what is an appropriate level of benefits will vary in kind and degree from project to project, whether in health and education or in road building and telecommunications. The flow of benefits, after an aid project, may or may not be as high as during the project's life, and for some infrastructure projects the flow of benefits may not begin until after an extended period of investment. What is clear is that the flow of benefits has to be more than just positive. The importance and the duration of the stream of benefits must be justified as reasonable when compared with the initial investment and the costs--financial and institutional costs and costs to the beneficiaries--of maintaining the benefits. It is the net flow of benefits that is important in considerations of the sustainability of development programs.

The emphasis in the definition is on sustaining the benefits, not the project. A donor project is an external intervention with specific inputs, activities, and intended outcomes that result in a stream of benefits. It is the stream of benefits and the institutional ability to deliver them that are to be preserved, not necessarily the project itself. Because development projects operate within the context of developing countries, the ultimate objective is to create the capacity within those countries to sustain for "an extended period of time" the benefits that were generated by the project.

The length of the "extended period" will, of course, vary with the nature of the program and its objectives. The period for a disease prevention and control program may be finite if eradication is possible. If eradication is not possible, the investment period (i.e., the project) may aim at reducing the incidence of the disease and building a capacity for continuing efforts to contain the disease for indefinite period. In the case of the donor-supported rinderpest campaign in the Sahel, the campaign failed because the "after project" phase was forgotten, and the pest reappeared, eventually reaching its initial, pre-project proportions.

The period for an infrastructure program such as road construction or rural electrification, whether or not bounded by the goal of reaching a preestablished portion of the population, may be indefinite, particularly if the coverage is extensive and if there is a need for continuous maintenance and upgrading. A tea factory, however, may have an extended, or normal, life of say 30 to 40 years. The definition of "extended period of time" thus must be determined by the goals of the program.

3.1.4 End of Major Financial, Managerial, and Technical Support From an External Donor

The reference to "major support" in the definition is deliberate, as it is not necessary for sustainability that the program be totally supported by local resources. The objective of a sustainable program is to make a country self-reliant, not necessarily self-sufficient, in a selected development activity.

Prospects for sustainability can often be enhanced by providing very modest follow-on assistance. For some activities, short-term technical consultations or commodity support may help ease the transition from full donor support. Other circumstances may call for cooperation with the developing country in solving special problems that threaten postproject operations. Under

these conditions, a project can be considered sustainable even though some external support is being provided. The sustainable program is characterized by the developing country's having the primary responsibility for the activity, the institutional capacity and commitment to carry it forward, and the ability to mobilize the necessary resources to maintain it. It is not necessary that this be accomplished without any assistance from other sources.

3.2 Sustainability and Feasibility

3.2.1 Sustainability as an Aspect of Feasibility

The complexities of the definition of sustainability are revealed by the distinction between "feasibility" and "sustainability." Project feasibility relates to a wide range of factors that must be considered in determining whether the project itself can be carried out; these factors are assessed even before an examination of technological and design issues or assumptions on input availability. Sustainability can be thought of as one aspect of feasibility. If a feasible project is considered to be one in which expected benefits (suitably measured and discounted) exceed expected costs (similarly calculated), sustainability influences the judgment about feasibility through its combined effect on expected benefits and costs.

In theory then, sustainability is already taken into account by feasibility assessments. In practice, several donors have discovered that although their projects were feasible technically, economically, and under initial institutional conditions as expressed in economic rates of return, the projects subsequently were not sustainable because of inadequate attention to long-term institutional factors. It is, therefore, quite possible for a project to be initially feasible but unsustainable.

3.2.2 Designing Projects That Are Both Feasible and Sustainable

Distinguishing sustainability from the more general concept of feasibility can help donors design sustainable projects. Typically, project designers will seek to maximize rates of return in the interest of feasibility, quite apart from any effect this may have on sustainability. When attention is shifted to the elements provided by the donor that will be needed for future continuation of the benefit stream, modification of the traditional feasibility appraisal is necessary. This is particu-

larly true for projects in vulnerable sectors that donor reviews indicate are relatively more difficult to sustain, such as health and rural water supply projects. Thus a feasibility study should estimate not simply the planned benefits of a proposed project but also the likelihood that these benefits will be realized and continued. In addition, the study must identify the mechanisms that should be installed during project implementation in order to make sustainability possible. Project components that constitute such a mechanism include, for example, training of technicians and managers and establishment of administrative procedures.

3.3 Objectives of Sustainability

3.3.1 Self-Sufficiency or Self-Reliance

The objective of sustainability should be self-reliance, not self-sufficiency. It would serve the interests of neither developing countries nor donors to insist that sustainability be defined, in part, by total independence of the developing country from external assistance. Self-sufficiency or autarky may place unnecessary demands on local resources to meet development needs. There are cases in which donors have a comparative advantage in providing certain of these needs. Examples might be technology, training facilities, or management skills. Where high returns to modest investments can be realized, there is a compelling justification for undertaking such investments.

A sustainable project is one in which the host country has become reliant on its own efforts and abilities. This is quite different from complete independence. It should be the goal of a development program to help establish and strengthen the foundation on which future activities can grow and spread. There is a need to develop and nurture capabilities so that developing countries can take charge of the pace and direction of their own development. From self-reliance will come the experience needed to sustain development efforts.

3.3.2 Developing Country Relations With Donors

Self-reliance has certain implications for postproject relations between developing countries and donors. A healthy development program should draw on external technical and related financial support for some portion of its operations to help keep it abreast of developments in other parts of the world. External

resources can help sustain growth and enable adaptations to changing circumstances. By building a viable development capability, sustainable projects result in a relationship of mutual partnership and mutual benefit, rather than dependency, between recipient countries and donors.

Some donors use the words "sustainability" and "viability" interchangeably. Others have a preference for "viability." A sustainable project or program must be viable in the sense that it must have the capability to produce the stream of intended benefits. "Sustainability," as defined and used in this report, places the emphasis on what happens after a donor leaves a development activity and why. A sustainability analysis will identify and emphasize the factors that will allow the continuation of the stream of benefits that a project has produced. Viability does not, unless qualified, distinguish between the implementation and postproject phases of a project. The unique problems that experience shows can occur in the postproject phase make it important that this temporal distinction be made.

This section has focused on identifying the characteristics of sustainability and has offered a definition based on those characteristics. The next step is to identify the factors that contribute to that outcome. In its fullest sense, sustainability is defined by the factors that are essential components of sustained development programs, that is, those factors whose presence or absence influences the delivery of benefits when major donor support has ended. The factors that influence the ability to deliver benefits are discussed in later chapters, and together with this chapter, they constitute a comprehensive definition of the term for use in the planning of development assistance.

4. FACTORS OF SUSTAINABILITY

4.1 Choice and Range of Possibilities

If sustainability is to be made operational, its contributing factors must be identified. For project design and planning, the most useful contribution of a sustainability analysis is the identification of the factors that will enable a particular program to continue to deliver an appropriate level of net benefits after major donor assistance ends. The determinants or factors of sustainability are directly linked to and emerge from analysis of the specific objectives and activities of projects. When sustainability factors can be identified, the capacity for the future delivery of benefits can be increased through appropriate attention to those critical components.

When members of the DAC Expert Group on Aid Evaluation reviewed the results of their evaluations in order to assess the experience with sustainability, they identified a wide range of factors. The factors were based on donors' experiences with project implementation. While each donor had a unique list, many of the same factors emerged repeatedly from different development activities funded by different donors. The choice of factors and differing emphases reflected differences in analytic approach and types of programs reviewed. Some of the variations are discussed later in this section. It is both natural and necessary that the factors considered should vary according to sector and type of development program. However, the review of donor criteria reveals that, in practice, donors are applying a relatively common set of factors to sustainability.

The list of factors included in this paper should not be interpreted as being definitive or exhaustive. This report attempts to present a list that reflects, as much as possible, the range of factors that have been and will continue to be important in development programs.

4.2 Primary Categories

The DAC Group's findings, reflecting broad consensus, fall within the following categories: government policies; management, organization, and local participation; finance; technology; sociocultural influences; environment and ecology; the external economic and political context within which a project must operate; and program design features.

These primary categories are used in this report as a cataloging or organizational tool for presenting the findings of the DAC Expert Group's reviews of evaluations. A section is devoted to each category, and factors of sustainability are discussed and illustrated with project examples.

4.3 Variations in Approach and Emphasis

Most donors identified factors based on lessons from their evaluation work that revealed components or features of a project that worked or did not work with respect to sustainability. The factors that were selected were closely related to the type of program being evaluated. While the presentation for each donor varied, many of the same factors were identified repeatedly.

A complementary method provides for choices about projects over which donors exercise varying degrees of control: the choice of country, sector, location within the country, and project design. If it is known which of these choices are the most important for achieving high levels of sustainability, it should be possible to offer guidelines on how to plan for sustainability for each type of decision. This approach offers a different perspective on how a donor might plan for sustainability. It may be applied in combination with the "factor approach" as a complementary view of sustainability. These choices are discussed in more detail in Section 12, which explores design features that encourage sustainability.

4.4 Sectoral Approaches

Many donors have conducted reviews of sustainability in specific sectors. The motivation for such studies is varied. Some donors have particular sectoral interests because a substantial part of their development activities takes place in a limited number of sectors in which they believe they have a comparative advantage. The experience of these donors typically involves a number of related projects implemented over an extended period of time. Where donors have this history of experience and concentration of programs, a sectoral approach to sustainability is a logical one.

Other donors have conducted studies of sustainability for sectors that have frequently been problematic. For many of these sectors there are compelling political or humanitarian reasons to continue assistance, despite poor performance. An example is the health sector: several donors have found health programs to be difficult to sustain without external assistance. Typical problems include ineffective logistical and supply systems, difficulty in covering recurrent costs, and a general failure to institutionalize project activities. Reviews of such sectors are conducted so that persistent problem areas can be identified and solutions found.

The sectoral approach is consistent with the factor approach described earlier. The sectoral analysis confines itself to the factors that influence development programs in that specific sector. For project designers and donors involved in that sector, the study findings offer particularly relevant guidance.

5. GOVERNMENT POLICIES

5.1 Scope of Government Policies

Development projects operate within the context of a national government policy environment. Government commitment and policies that support project objectives are critical to sustainability. Even the results of a "good" project will not be sustainable if the policy environment is hostile. If conflicts over policy and priority are known and deemed likely to preclude sustainability, it is doubtful that such projects should be undertaken.

5.2 Government Commitment

Many donor projects generate or strengthen activities that are expected to be the responsibility of the developing country when assistance ends. The sustainability of the benefits--the results or impact--of such projects depends largely on the country's commitment. Analyses of this commitment take into account the degree of agreement on objectives; the breadth and depth of support within the responsible organizations and from various political, bureaucratic, private, and local community groups; and the willingness to provide financial and personnel resources. Country commitment is also shaped by perceptions of mutuality of interests versus perceptions of predominantly donor-driven interests. Since commitment may vary over time and be affected by external factors and competing interests, it must be assessed on a continuing basis.

When the sustainability of a program depends on certain government actions, these actions should be clearly identified before a project is started. For example, the physical requirements for which the designated organization is responsible should be identified at the outset of the project. Opportunities should be explored for releasing funds in tranches that are conditional on meeting these requirements. This strategy brings to the front the resource requirements the activity implies and enables all parties to make an informed decision about the desirability of a particular project.

From the experience of France, commitment to ensure sustainability is evidenced by a government's willingness to take certain steps under its own authority. France's review noted that government action may be required to protect fledgling industries from international competition. Governments can also enhance

sustainability by considering restructuring, rehabilitation, or privatizing public companies rather than undertaking new investments that are likely to be more costly and problematic. Finally, governments can support companies that agree, through negotiated contracts, to follow certain policies regarding production, prices, and employment.

This view suggests a very active role for developing country governments that goes beyond creating an environment that fosters development. Experience shows that governments are usually not efficient managers of productive enterprises. Attempts to control such enterprises have too often resulted in the draining of scarce budget resources--a major consideration in program sustainability. Given these findings, an alternative approach preferred by some donors is to channel more resources directly to the private sector when private productive and service enterprises are the intended beneficiary group. The role of the government then becomes one of ensuring that the policy environment provides the right incentives for producers.

5.3 Impact of Government Policies

Many developing country policies can threaten sustainability. They include allocation policies that deny foreign exchange requests for the purchase of replacement machinery and spare parts, input and output pricing policies, the hiring away of project personnel specifically trained for project positions, insufficient provision of local counterpart staff, establishment of wage rates that are too low to retain project-trained personnel, and, more generally, failure to provide support and complementary policies and programs.

In a World Bank project in West Africa, for example, government pricing policies did not favor the establishment of the proposed cropping system for cotton and maize; following completion of the project, these policies eventually induced a complete return to the traditional pattern of groundnut, millet, and sorghum production. Moreover, constant changes in the country's credit policies gradually discouraged technology adoption by making the purchase of equipment, seeds, and fertilizer increasingly risky or prohibitively expensive.

The Asian Development Bank reported that for most electrical power projects, the power utilities agreed that tariffs would be established and maintained at levels that would cover all operating and debt-service costs and that would finance a reasonable proportion of future capital expenditures. Only in a few cases, however, have the governments allowed increases in line with the

rising costs of production. The reluctance of governments to increase power tariffs adequately seems to stem from their belief that not doing so would be an effective anti-inflationary measure and an incentive for improved economic and social activities. However, the underpricing of power has eroded the financial viability of the power utilities. As a result, the utilities are often unable to sustain their operations or to undertake adequate investment without extensive government subsidies, which constitute a drain on the public budget and are themselves a disincentive to efficient operation.

The United Kingdom cited two programs that were adversely affected by national plans. The expansion of sugar processing activities was limited by a national policy that subsidized the importation of cheap sugar. Similarly, micro-hydro schemes in Sri Lanka were not accepted by the National Electricity Board. The sustainability of these projects is therefore in doubt.

5.4 Government Priorities

It sometimes happens that a donor, the developing country government, and beneficiaries have different priorities and development objectives. Where there is no expressed interest in or perceived need for a development activity, support and participation are unlikely to be forthcoming. In contrast, programs that are consistent with national priorities enjoy the advantages of support from national leaders.

National priorities are not static, however. Rather, shifting donor resources into an area that initially lacks priority status presents certain challenges. These may include the need to begin slowly, to demonstrate value, and to actively seek full participation. In a number of developing countries this has been the case during the early years of family planning projects, which were promoted by donors in advance of their general acceptance. But the option should remain open not to undertake programs where resistance is particularly strong.

The following evaluation comments included in the Danish review illustrate the influence of this difference in priorities: "It is recognized by the mission that the Bolivian counterpart organization shall not in the near future be able to assume resource-demanding tasks, and yet the mission recommends the continuation and extension of the project due to its positive impact within the health sector and its ability to mobilize the population in a difficult environment. In this case, the mission clearly does not consider the attainment of project sustainability as a criterion of continued support."

6. MANAGEMENT, ORGANIZATION, AND LOCAL PARTICIPATION

6.1 Scope of Management and Organizational Factors

There is strong agreement among donors about the essential role of good management and effective organization in achieving sustainability. These are the factors that lead to the strengthening of host country institutional capability. Management skills and good leadership, scarce in developing countries, directly influence the capabilities of institutions.

This section explores some of the factors that lead to growth in host country institutional capacity. The first section focuses on the quality of a country's managerial skills and leadership, which can be a critical determinant of sustainability. Organizational requirements, especially administrative and training systems, are examined in the next section. The chapter concludes with a look at the role of beneficiary participation and local support groups and constituencies in sustainability.

6.2 Managerial Leadership

Managerial leadership is key in developing sustainable programs. Sustainability and program management are two sides of the same coin. Program sustainability includes a consideration of the involvement of beneficiary constituencies, supportive policy environments, organizational and administrative capabilities, sustained financial support, technology choice and renewal, appropriate organizational location (national, regional, or local), and creative leadership. Program management has parallel concerns. It addresses sustainability issues from the perspective of program leadership. It encompasses responsibility for shaping policy and technological applications, setting goals, and mobilizing support from political leaders, complementary organizations, and beneficiaries, as well as for directing internal administration.

Management skills and good leadership are among the scarcest of human resources required for development. This is evident not only in the need for policy-makers, decision-makers, and entrepreneurs but also in the scarcity of people able and willing to undertake the analytical responsibilities of framing the issues for policy-makers. During the life of a project, management is often handled by expatriate advisers. All too often, when the advisers leave, the capability to administer the program goes with them.

A Botswana primary education improvement project funded by the United States was rated by evaluators as having a high potential to maintain a flow of benefits because of two features of the project:

-- Capable leadership and effective management in the ministry and the university had created strong constituency support.

-- Cooperation of major institutions was close and liaison with local authorities was extensive, with favorable impacts on teacher performance. Institutions were effective and flexible in dealing with change.

The Asian Development Bank's experience with a fisheries development project in a South Asian country showed that the project could not compete with the private sector in trawl fishing because institutional capability had not been adequately strengthened under the project. As a result, the project's fleet of trawlers was not able to supply fish for the project refrigeration complex and fish carrier vessels, and so these facilities were underutilized. The cooperative societies, to whom part of the loan funds were re-lent, continued to face financial and management problems; they lacked technical and managerial competence to operate the project ice plants and sustain their benefits at satisfactory levels. Assistance for strengthening the management and institutional capability of the cooperatives was obviously needed but had not been foreseen during the project appraisal.

The ability of training institutions to plan for their own incremental growth was judged by the United Nations Development Program to be a crucial factor in their achievement of a degree of self-reliance. Growth, which was based on either an established strategy or a response to changes in external considerations such as client demand, suffered when management was inadequate or when there were gaps in the skill composition needed by those institutions.

6.3 Development of Organizational Capabilities

6.3.1 Administrative Systems

An effective administrative system is an essential requirement of sustainability. The administrative system under which a project will operate must be understood, and the project design

must be developed accordingly. When project expectations are well matched with institutional capability--existing or expanding over time--sustainability is enhanced.

Personnel Systems. The administrative system must be able not only to recruit qualified staff but also to retain them. For example, a system that experiences frequent delays in paying staff salaries, is unwilling to fund per diem costs for required travel, or is unable to approve personnel transfers to towns where spouses are located is unlikely to be able to sustain its activities. High turnover rates represent a real threat to sustainability because skilled people are program assets in the form of human capital. Germany's report pointed out the particular significance of the personnel aspects of local capacity to project sustainability.

Logistics and Maintenance Systems. Another crucial part of organizational capability is an effective logistics and maintenance system.

In its program review, Norway found that one fishing project had such a severe problem with lack of maintenance of the boats and facilities that the two project vessels were frequently out of service for long periods. "This is not simply an issue of choice of technology, but is, unusually, an example of the problem of sustainability arising even before the donor's departure."

The Asian Development Bank expressed concern that high benefits from two public road projects might not be sustained unless an adequate and timely flow of funds was allocated for proper maintenance and for replacement of worn-out bridges. The funding for operations and maintenance was provided by the host government because user fees are not normally collected for public roads.

The Bank also noted that poor policies can create or worsen maintenance problems. For example, the maintenance costs of two road projects in one Southeast Asian country were expected to be high because of a reduction in the design standards of the roads during implementation; also, the government had decided to increase axle load limits and allow an increase in the gross vehicle weight, which would hasten deterioration of the roads.

Denmark noted that "the development of maintenance systems poses a major problem that tends to be solved rather late in the project cycle." The evidence from many of the donor reviews shows this to be an unsatisfactory approach.

Information and Feedback Systems. Feedback in a management information system can be important in guiding project develop-

ment and assessing impact. A feedback system helps managers determine how well their project is performing and which methods work most effectively. This is particularly important with a new technology or approach. When a project is to be replicated elsewhere, the evaluation component of a pilot effort has proved to be a consistently valuable exercise. One problem frequently cited in project evaluations was that the reporting system was beyond staff capabilities in terms of sophistication or time requirements. Sustainability can be encouraged by having a reporting requirement that is relatively simple but captures the most critical information in a consistent format.

The Inter-American Development Bank noted that in its animal health projects, surveillance and monitoring activities tended to be cut back after the Bank's immediate role in financing the projects had ended. In part this is because such activities often required additional expenses, such as for vehicles, personnel, travel, and fuel. Another reason is the lack of understanding about the importance of surveillance and monitoring, particularly once the project begins to realize its objectives. This, in turn, may reflect the fact that information and monitoring systems were established primarily at the insistence of the Bank and had little internal support within the agencies assigned to execute the programs.

6.3.2 Training

Training was frequently identified by donors as an important factor of sustainability, but correctly identifying and providing for the training needs of a project does not ensure sustainability. Most assistance projects have a good record of meeting physical training targets. Yet training and organizational development achievements that are essential to sustainability are easily lost as a result of poor management or failure of decision-makers to provide opportunities for specially trained personnel to use their newly acquired skills.

The United States noted that its experience shows four ways in which the accomplishments of training programs can be threatened:

-- Attrition. As trainees leave the service delivery system that invested in them, human capital is lost. For a system to remain effective, attrition rates must be kept at a manageable level. When attrition rates begin to reach unanticipated levels, the factors causing attrition must be quickly identified and addressed. Replace-

ment training plans are important if coverage is to be maintained.

-- Market demand for trainees. As trainees graduate, a system must be in place to absorb and make effective use of them. Failure to provide an opportunity for specially trained personnel to exercise their new skills can result in the dissipation of the newly acquired capability. If trainees are to have the opportunity to use their new skills, training programs must be designed to take into account the market demand for different types of skills.

-- Retraining. Refresher or follow-up training is as important to sustainability as initial training. The newer the concept, the greater the need for reinforcement through retraining. Even when retraining is planned for, it does not always take place. Retraining efforts often depend on developing country funding. Participants are expected to pay for their own transportation, food, and lodging. This can represent a significant expense for those who have to travel long distances and will exacerbate existing problems of infrequent attendance.

-- Poor resource allocation policies. Training, because it is usually successful, tends to be a popular component of health projects. It is encouraging for developing country governments and donors to see a graduating class of students. In some projects, this has led to excessive budget allocations for training to the detriment of supervision, maintenance, and other areas of need.

Canada's review found sustainability to be strongly linked to training through its contribution to human resource and institutional development, especially at the grass-roots level. The type of training administered can be especially important. On-the-job training, training at institutions in the developing country, training at the local/target group level, and training that includes foreign language components are more likely than other types of training to yield sustainable benefits. In addition, training for specific positions in a program that offers challenging, long-term jobs is likely to provide lasting benefits for the program and country.

Canadian evaluation reports offer some specific lessons in this regard. The evaluation of the Medicine Sociale et Preventive project in Tunisia indicated that participants receiving long-term training in Canada are more likely to return to the project the training program supports if the project is innova-

tive and stimulating and the trainees believe they will have the opportunity to put their new knowledge and ideas into practice. The major lesson from the Tanzania Spare Parts project is that while the supply of spare parts is critical to the operational viability of the parastatals, overall management capability and policies (e.g., tariff setting) and technical assistance in equipment management and maintenance training may be more important to the achievement of institutional sustainability and self-sufficiency. Experience with the Swaziland Rural Water project indicated that either a sufficient number of persons need to be trained initially and subsequently to offset possible attrition or the recipient government should be asked to ensure that trained persons remain for a minimum period after their training has ended.

In two bridge projects in Indonesia, Australian assistance helped establish in the local implementing agency the technology necessary for sustaining required training in higher level engineering and construction management.

6.4 Local Participation

Local participation was cited by many members as a critical element of sustainability. For example, Canada credited the success of the Cooperation and Nutrition project in Nicaragua in part to the use of a small-scale pilot project and to working through existing local organizations. Similar factors influenced the success of the Guatemala Rural Water project. Sustainable benefits from this project were related to the adoption of a community-based approach, the use of local resources, and the development of a more effective institution for delivering rural potable water services.

The Asian Development Bank found that in irrigation projects, a major contribution to sustainability comes from the development of farm-level organizations. Working through these organizations enables project beneficiaries to assume gradually increasing responsibility for project activities during implementation. However, this has not always been possible. In several cases, such organizations had not yet been set up. Even among those that were organized, many had not become fully operational and were unable to assume greater responsibilities in operation and maintenance of irrigation facilities or to participate more effectively in agricultural extension activities. To help ensure the sustainability of irrigation projects, it was recommended that the institutional development component of the project irrigation system be strengthened by assigning more staff to organize new farmers associations and by providing more intensive

training in system operation, water management, and modern farm practices. In addition, all agricultural support services, especially extension activities and agricultural credit, should be adequately provided and well coordinated under an effective mechanism at the system level.

Similarly, a key finding from the U.S. evaluations of rural development projects is the importance for successful project performance and sustainability of some form of beneficiary participation in project management decisions. The nature of such participation, however, has varied considerably. For many infrastructure projects, such as irrigation, rural roads, and electricity and water systems, the active involvement of local community organizations in infrastructure planning, construction, and maintenance decisions was found to be critical to project success and sustainability. For other rural development activities, such as provision of agricultural inputs, credit, extension, and marketing services, it appeared that local organization was not essential as long as an effective monitoring mechanism was available that informed project management of the actual needs, preferences, and constraints of their client population, the farmers, vis a vis the project's products and services. Project experience has made it clear that the intended beneficiaries' perceptions of the value of project services profoundly affect utilization. For example, perspectives concerning the timeliness and reliability of the services and considerations concerning affordability, ready access, and ultimately profitability and riskiness affect farmers' decisions to adopt new agronomic technologies and practices.

With regard to infrastructure projects, experience indicated time after time that the centralized agencies that typically constructed rural infrastructure did not have the recurrent budget to maintain it properly; or perhaps more correctly, gave operation and maintenance low priority relative to new construction. Donor actions probably supported this attitude by being more forthcoming with assistance for new construction or rehabilitation than for operation and maintenance costs or for organization. The result was that too frequently rural systems fell into disrepair, providing unreliable services to farmers who in turn would attempt to reduce their dependence on and utilization of these modern technologies.

Successful, sustainable projects were frequently those that placed the responsibility for operation and maintenance clearly on community-based organizations, user groups, cooperatives, or the like. However, responsibility for operation and maintenance can only be successfully devolved if some concomitant control over service provision is also devolved. Timing of involvement was important. The user associations were most effective if they

were established in the early phases of the project and they had a voice in planning and implementation decisions such as choice of technology, physical design and location, allocation, maintenance and repayment policies, and other aspects that made the project "appropriate" from their perspective. Such early involvement in planning by intended beneficiaries frequently avoided costly mistakes by ensuring fulfillment of the community's perceived needs and enhancing their utilization and motivation for maintenance.

7. FINANCIAL FACTORS

7.1 Scope of Financial Factors

The factors discussed in this section influence a program's long-term financial viability and independence. The Inter-American Bank noted that it is more appropriate to think of the sustainability of benefits as a "financial" rather than an "economic" concept. While economic criteria and measures of benefits are useful in selecting the most viable among alternative projects, in an analysis of sustainability it is important to reflect the flow of funds necessary to cover operations, maintenance, and depreciation of the investments that are providing the services that need to be sustained. Therefore, only a financial analysis that demonstrates that funds will be available via either cost-recovery provisions or direct appropriation of funds addresses directly the issue of the sustainability of benefits.

One of the most serious shortcomings of development programs, and a major impediment to sustainability, has been the inability to achieve continued, regular funding of annual operating costs. There are several reasons why recurrent costs may not be covered. One is the appropriateness of the costs. When recurrent costs are large relative to the initial investment or to the benefits generated, sustainability is unlikely. Regardless of how desirable an activity may be, if a country or beneficiary group cannot afford to maintain it, it will not continue when external funding ends. It is also important to develop early in a project's life a mechanism that will ensure that necessary costs will be covered. Experience shows that unless host country financial support is phased in while external support is still being provided, it is unlikely to be provided after external support ends.

Typically, developing country governments assume responsibility for recurrent costs. However, there is strong evidence to suggest that prospects for sustainability are greater for proj-

ects that do not depend on general public funds. This section looks at the developing country's budget process and discusses some of the more successful experiences with the transition to financial self-reliance. Some projects have relied on user fees and local village contributions to shift program costs to those who receive the benefits. In other cases, private sector networks have been mobilized for development activities. Examples of successful implementation of such approaches are presented to offer design guidance for future projects.

As the topics listed above imply, the discussion is focused on factors at a project or microeconomic level. But projects, of course, operate within the context of a domestic and international economic environment. A balance of payments crisis will be particularly troublesome for projects that have critical import requirements. The macroeconomic conditions that influence projects are discussed in Section 11 on external factors.

7.2 National Budgets

Before the problem of insufficient funding of recurrent costs can be solved, one must first examine the potential sources of funds to meet these costs. Most developing countries fund program activities through the national budget. The reason for this preference is straightforward. By controlling the resources, governments are able to direct investments according to their established priorities. When the government budget is enjoying a period of growth in real terms, this approach works fairly well. During periods of budget stringency, however, the sustainability of programs can be seriously threatened.

The following lesson from the Inter-American Development Bank (IDB) review illustrates this problem. Public health projects such as those evaluated by the IDB benefit primarily low-income groups who cannot pay high fees for the services provided. Thus the projects must rely on government budgetary allocations to cover virtually all recurrent costs. This makes the projects especially vulnerable to adverse macroeconomic conditions affecting the country, particularly in countries with a large population of poor people and an economy that is dependent on a few exports. Projects that are sustainable during boom periods may not be sustainable in periods of economic stagnation or decline.

A rural development project funded by the United Kingdom was threatened by a shortage of local funds for recurrent costs. Technical packages promoted by the project had not been tested in the field, and projections for farmer uptake and sale of hybrid maize were not realized. In addition, agricultural pricing poli-

cies did not support intensive maize production. Thus, the revenues planned for covering the costs of running the marketing agency and the management unit were not available.

When projects are negotiated, governments give assurances that reflect their intention to provide certain resources. However, good intentions are often not sufficient. For example, in a rural health support project funded by the United States in Sudan, the Government was unable to fund recurrent costs adequately, despite the fact that improving health services was a high-priority goal. The problem was exacerbated by a fiscal crisis arising from macroeconomic difficulties, a flawed project design that sought action on too many fronts, and an underestimation of transport problems and other constraints.

How can these all too common outcomes be avoided? One way to ease the transition to self-reliance is to use a phased financial plan. The end of the project is clearly the wrong time to start thinking about postproject funding. Decisions must be made much earlier--ideally at the start of the project. Whether as part of a formal statement of conditions precedent or through an implementation letter, a multiyear financial plan can be established at the start of the project. In a typical case, the donor would fund 100 percent of the costs in the first year, and a steadily declining percentage in later years. This mechanism allows time for the government to make provisions for critical items while donors are still providing most of the funds. For example, negotiation for developing country coverage of personnel costs and their inclusion as a line item in the government's operating budget is much easier while external assistance is being provided.

While the donor is absorbing some of the project costs, the developing government can begin to assume increasing shares. By the time of donor withdrawal, staff members are in place to continue the work. Experience shows that project costs are easier for a developing country to handle if the increases are small and are steadily budgeted and phased in each year.

National budgets may not, however, be the best source of funding. The next sections explore alternatives.

7.3 Other Sources of Funding

7.3.1 User Fees

User fees and community financing schemes can ease the financial burden on a developing country's budget. As the United States review pointed out, "user fees can encourage greater delivery of services by providing incentive payments for extra duty by service providers (e.g., extension personnel or village health workers). A critical element of user fee success is consumer demand. In many cases the lack of financial support [was] related to priorities and willingness to pay rather than inability to pay. If services are perceived as useful and relevant, experience shows even the poor are willing and able to pay. While desired, there are few cases where user fees have been developed to ensure the future financial soundness of activities."

The IDB focused its sustainability review on three sectors (animal health, public health, and rural water supply). In each of these sectors the IDB found that ineffective cost-recovery procedures had contributed to the lack of program sustainability. In animal health projects, vaccines were provided at subsidized rates or, in the case of small producers, free of charge, and consequently, fees did not cover program costs. In other cases, the influence of cattle producers prevented the enactment of tax legislation that would have financed the programs.

In the health projects the IDB evaluated, it was noted that a government's official policies guaranteeing universal access to health services (free of charge if necessary) were basically incompatible with the resources actually at its disposal for that purpose. Such a situation virtually guarantees that public health programs will become unsustainable, unless specific targets and limited objectives are set.

The IDB found that the sustainability of rural water projects basically depended on adequate tariff and administrative systems. In the absence of an effective tariff system, resources were not available to cover operating and maintenance costs adequately. This frequently led to a lack of maintenance (and ultimately to the breakdown of equipment such as diesel pump sets) and a reliance on voluntary operators (who had little incentive to improve service).

The United States is placing increasing emphasis on finding ways to encourage user fees and other self-financing mechanisms.

Recent evaluations of the Combatting Childhood Communicable Disease project efforts in Liberia and Zaire were particularly encouraging in that respect, demonstrating that even for preventive care some cost recovery is possible.

In Liberia, a revolving drug fund was established. "Seed drugs" were provided to clinics on credit, with the agreement that they would pay back the value of these drugs. This was not a problem because the average value of drugs issued was $145 whereas the proceeds from the sale of the drugs was about $340. On the basis of 1 year's experience, evaluators concluded that the revolving drug fund can work in Liberia and that it is an excellent way of ensuring not only that drugs are available at the clinics but also that the clinics generate enough fees to support and maintain themselves without external aid. Once people realize that services are available, they will come for treatment and, for the most part, they are willing to pay for it. Evaluators also noted that before the system is introduced, members of the community must understand the nature and value of the revolving drug fund and their role in maintaining it. Ideally, such projects include the provision of seed money to pay for drugs and supervision to ensure that the money is managed correctly.

The project in Zaire supported three major activities: immunization, oral rehydration therapy for diarrhea, and presumptive treatment of malaria with chloroquine. The latter two are curative interventions, the former is preventive. The charges for the curative-intervention commodities--oral rehydration salts and chloroquine--should be able to finance all of the direct costs. It is the widely held opinion of professionals that users will pay the full costs of curative services for which there is a perceived need but are less willing to pay for preventive services. For the immunization program, a preventive intervention, the general practice in Zaire is to charge mothers a nominal, one-time fee for a card that then allows them to bring their children to preschool clinics. As long as the fees are low, they do not seem to hinder participation in the vaccination program. However, such fee levels are sufficient only to cover the cost of personnel who deliver the vaccinations. Thus, all national, regional, and zonal costs of the vaccination program must be covered from other sources.

7.3.2 Local Village Contributions

Local village contributions can ease the financial burden that health care places on a developing country's national budget. Community financing schemes take many forms, including

voluntary contribution boxes, village-owned cooperatives, and allocations from community committees. However, other financing schemes are required for projects in communities whose residents live in such severe poverty that even token payments may be difficult or impossible to make.

A U.S. review of health projects found that the transition from external support to self-support is often difficult. "Even when local governments or communities agree at the beginning of the project to gradually take over the financial responsibilities of project activities, the precise mechanism that will be used is often unclear. Most local governments, while agreeing to try to assume responsibility, appear unprepared at the time of takeover and generally lack understanding of the magnitude of the commitments they had made."

7.4 Private Sector Participation

Use of the private rather than the public sector in implementing development projects can have important implications for sustainability. As mentioned in the earlier discussion of user fees, the willingness to pay for benefits is directly related to the perceived need and value to the consumer. Because the profit motive makes the private sector more sensitive to consumer demand, the prospects for financial viability are enhanced. It is also true that projects that prove to be highly profitable are more likely to be continued by those organizations providing the services.

There is less cost and risk in strengthening an existing delivery system or infrastructure than in creating a new one. In most developing countries, there are opportunities to use the private sector and local voluntary organizations to carry out development programs such as those in health services delivery or the promotion of new technological packages in agriculture. U.S. experience with a seed production program in Thailand shows the importance of private investment in seed processing and the use of a well-established network of private merchants and credit institutions in facilitating the adoption of improved seeds by the Thai farming community. In general, the decentralization of development activity to local communities and private enterprises can strengthen commitment and help to mobilize resources that otherwise would not be available. Such involvement is central to ensuring the sustainability of many development programs.

8. TECHNOLOGICAL FACTORS

8.1 Scope of Technological Factors

The technology chosen for a project is an important factor of sustainability. The technology must be appropriate both to the host country's financial and institutional capabilities and to the project goals. In addition, sustainability requires that the technology be accepted. Finally, there must be a mechanism through which the technologies are maintained and renewed. The following sections elaborate on each of these topics.

8.2 Choice of Technology

The most sophisticated technology available is not necessarily the most appropriate, even where the prospective users desire it. Advanced technology and expensive hardware that exceed an institution's financial or technical capacity are likely to be wasteful, ineffective, and ultimately unused. A simple technology that is precisely focused on the needs of the task at hand enables counterpart staff to master it quickly. Then, the important step of diffusion can take place. Finally, costs must not be excessive relative to benefits generated or to the financial capacity of the host country.

The following experiences help illustrate these points. When the Asian Development Bank evaluated its assistance to fisheries projects that involved the introduction of new fishing technologies, it found that they had not achieved sustainability. In most cases, the new vessels were not designed to suit local conditions and therefore were not replicated in subsequent investments by the public and private sectors. Moreover, vessels provided to assist small fishermen were at the top of the local technology scale and their cost was high relative to the initial wealth of the beneficiaries. Thus, even if small-scale fishermen were technically capable of employing the technology, the burden of financial management frequently posed a serious obstacle to sustainability.

Canada found that sustainability was threatened in a small-scale fisheries development project in the Philippines by the establishment of facilities that were too elaborate and complex to be operated in a technically and financially viable manner by an indigenous organization. Evaluators concluded that "the cooperative supported by the project will face considerable difficulty in achieving self-reliance because the scale of the coop's

facility is too high when related to the size of the local fishery."

8.3 Hard and Soft Aspects of Technology

Interesting observations on technology emerged from the sustainability review of Japan's project evaluations. Japan's review made a distinction between "hard" technologies, such as construction or engineering techniques, and "soft" technologies, such as management methods or staff training systems that produce adequate manpower to continue programs. The conclusion of Japan's review of technology transfer was that for "hard" technologies, the ability of developing countries to assimilate the technologies has increased and donor nations have developed more appropriate transfer methods. However, for "soft" technologies, the basic concept and the methodology still need to be clearly defined.

The ability to judge whether sustainability is likely is enhanced by focusing on the capacity of implementing entities to assimilate and use the management and operations aspects of the new technology. Japanese Water Resources Development projects in Indonesia illustrate the process of successful technology transfer. The projects are being implemented under the leadership of the Indonesian executing agency, and the strengthening of this leadership was determined to be critical to project success. The technology transfer occurred over four stages:

1. Simple absorption of know-how from Japanese technical experts (1962-1964)

2. Positive participation in the implementation of construction works, with overall support from Japanese experts (1964-1972)

3. Independent implementation of construction works, with advice from Japanese experts (1972-1976)

4. Independent implementation of works without any assistance from Japanese experts (1976-)

The main factors contributing to the smooth achievement of the technology transfer were (1) the existence of effective leadership within the executing agency, (2) the application and naturalization of the technology and know-how learned in the early stages of the projects, and (3) the continual implementation of projects of similar type.

Other considerations about technology choice involve maintenance requirements. Simple technologies are often more reliable. France made the following observations about the relationship between level of technical sophistication and sustainability: "The more advanced the technology involved in a project, the more problematic maintenance becomes: equipment is more delicate, repairs require higher levels of expertise and recourse to technicians who must come from abroad, involving longer immobilization periods for expensive equipment. In this area, one also sees the harm of anarchic competition and the absence of international cooperation .... Indeed, when materials of various origins coexist in the same project, upkeep and maintenance of investments present problems which are sometimes impossible to solve, leading projects intended for development to a graveyard of western technology."

8.4 Adaptation of Technology to Its Setting

Developing countries need to have the capability to develop and adapt new technologies as circumstances change. Technology needs to be examined, tested, and adapted to ensure its suitability in a particular developing country setting even if it has been widely adopted in another developing country. The acceptance of a technology is likely to be enhanced where the users see immediate benefits from its application, are trained in its use and maintenance, feel that they have effective control of the technology (including the timely availability of spare parts) as individuals or groups, and believe that its operating and maintenance costs are sustainable. If a sophisticated technology must be chosen for a project, special attention must be given to maintenance and to training of personnel.

The United Kingdom emphasized the importance of the technology's relevance to local needs. Their review concluded that a sugar-processing technique was a success in Kenya because the local factory wanted the technology. Again in Kenya, the dissemination of a new roofing technology was a success because the technology met a perceived need and the collaborating institution was strong. In contrast, the adoption of the same technology in Malawi was slower because the collaborating institution proved weak and quality control was poor.

Australian technical assistance to the forestry industry in South China demonstrated low-cost methods of increasing forestry production. The technology selected was adapted to allow the use of locally produced equipment to help ensure sustainable operations.

9. SOCIOCULTURAL FACTORS

For a project to be sustained, it must become a part of the social fabric of the area in which it operates. Satisfying the technical requirements of the project is not sufficient; the project must also be compatible with its setting. This requirement applies to all the factors discussed in this report--design and implementation, the financing scheme, technology selection, the capacity of the institution that will assume responsibility, and so on. Although a project may be able to exert some influence over local sociocultural factors while external financing is still available, it is unlikely that this will continue when assistance is withdrawn. Integration of the project with the social and cultural setting thus becomes especially important if the activity is not to be rejected after assistance ends.

9.1 Motivation and Tradition

Projects that attempt to function in ways that are inconsistent with local traditions have a high risk of failure. The World Bank review noted two examples that illustrate the importance of understanding the behavior of local groups and the motivations behind it. One project in West Africa that sought to impose a cooperative system alien to traditional socioeconomic practices failed in its institutional development objectives. Another project in the Eastern Africa region, which attempted to introduce double-cropping in a rice-producing area, demonstrated that such efforts can fail if they depend on the use of a technology previously untried in the country. In both examples, it did not become fully evident until after implementation that the project designs were failing to modify existing behavior.

9.2 Local Organizations

The involvement of local communities and institutions can promote sustainability by building a base of support and fostering a sense of local ownership of the project. Working through local communities makes it easier to take advantage of traditional organizations and indigenous practitioners. For example, health delivery systems can incorporate traditional midwives and healers. Local groups are known and trusted by their communities. A fee structure representing the value of services is often in place. The problems of the community are known. Perhaps the greatest contribution of local participation is that it assigns responsibility to those who will benefit.

While building local capacity can be difficult in the short run, such efforts are necessary to ensure that people continue to make the contributions necessary for sustainability.

9.3 The Role of Women

One of the major crosscutting issues addressed by the DAC Expert Group on Aid Evaluation during its review of 1986 evaluations was that of women as both agents and beneficiaries of development. DAC interest in this issue mirrors donor awareness and appreciation of the significant role women play in the development process. The more the role of women is understood, in terms of both its problem areas and its strengths, the more future programs can benefit. The DAC report on women in development, based on member experience, brought out several points that are particularly relevant to sustainability.

The DAC study found that women were addressed infrequently in evaluation findings. Also noted was that the lack of attention to women paralleled a lack of specific attention to target populations overall in evaluations. This failure can have serious implications for sustainability. If it is not known whether and how the intended beneficiaries are being affected by program activities or how gender differences affect activities, appropriate steps cannot be taken to improve benefit delivery and thus to improve sustainability. These issues should be addressed during all phases of the project's life, including evaluation.

Another observation of the DAC study was that evaluations of projects in certain sectors (agriculture, health, water, population, and education) include more frequent references to women. In these sectors, women have strong traditional roles as laborers (agriculture, health, and water) or as neglected members of society (population, health, and education). For example, women are often the providers of health services as traditional birth attendants and health workers. They also assume responsibility for the health needs of their children. It is not surprising, then, that nutrition, family planning, and primary health projects tend to have the greatest impact on women. Projects, especially those in the sectors mentioned, that hope to have a lasting impact and become integrated into the social fabric of a community must explicitly address women as principal actors. Projects should address the conditions that are necessary to enable women to enhance their contributions to project activities.

10. ENVIRONMENTAL AND ECOLOGICAL FACTORS

The ecological balance of many developing countries is being threatened by population pressures and poor management of natural resources. In some cases, unplanned development has accelerated the depletion of natural resources, threatening the ability of the environment to renew itself. For most development projects, environmental impact analyses are part of the design process. Environmental policy and incentives are two areas in which actions can be taken to ensure that the benefits of projects are sustainable in a manner that is ecologically sound.

10.1 Environmental Policy

Policymakers must ensure that ecological impacts are factored into national growth and development plans. In addition, regulatory controls are often required to prevent environmental abuse for individual profit.

The World Bank recently reviewed environmental issues reported in its project performance evaluations. The findings illustrate some of the issues that appear in many donor projects. Most industrial projects were found to have adequate pollution and environmental controls. These included elaborate dam safety measures in an earthquake-prone area in Yugoslavia and the effective control of effluent discharge from oil palm, rubber, and livestock enterprises in Malaysia, Côte d'Ivoire, and Romania. Perhaps even more important, some projects had a positive impact on the environment by helping to develop environmental guidelines, formulating or strengthening overall governmental policies for protecting natural resources, or demonstrating new environmental control techniques.

Other projects were thought to have damaged the environment. These included cases in which deforestation was judged to have had an adverse effect on wildlife in Cameroon, the possible pollution of groundwater resources by agrichemicals in Yugoslavia, and a deterioration in waste-water standards under a water supply project in India that gave priority to an expansion of urgently needed water supplies that exceeded the capacity of the treatment facilities.

10.2 Incentives and Understanding

The second way in which sustainability can be enhanced through attention to environmental factors is by encouraging changes in behavior patterns that adversely affect the environment. This requires that the implications of actions, on the part of both donors and recipients, be understood. Ecological impact assessments during project design and evaluation and the education of participants are an important part of this process. Ownership can be a strong incentive to conservation. Experience shows that individuals are more apt to conserve resources when they are taken out of the public realm and when people are able to benefit directly from conservation efforts. Therefore, instead of designing a reforestation project or regulating how many trees can be cut, governments should provide incentives to grow and protect trees. One way to do this is by distributing seedlings to individuals. Ownership of the trees gives people an incentive to conserve the trees for their future productivity.

It is clear that project designs must include assessments of the unintended impact of project outputs, especially any negative impacts on the environment. For certain projects, environmental assessments are particularly important. These include projects in river basin development, water management, large-scale agricultural mechanization, drainage, land development and resettlement, roads, power plants, industrial plants, large-scale hydroelectric and potable water and sewerage projects, and projects that promote pesticide use.

11. EXTERNAL FACTORS

Development programs operate within the context of an existing political, economic, and cultural environment that is beyond their control. Yet they can be deeply influenced by this external environment. Regardless of how well a program is designed, or how appropriate it may be to development goals, it is unlikely to be sustained if the external environment is hostile. Severe disruptions like those resulting from political instability, natural disasters, or a balance of payments crisis can dwarf any other considerations. Furthermore, the economic context outside the project's sphere of influence can have major repercussions: low or falling world market prices, rampant inflation, chronic foreign exchange shortages, and balance of payments crises may frustrate the chances for sustainability of even the most promising program. These factors are thus an important part of the program selection and design process.

11.1 Issues of Political Stability

Political stability figures prominently in the sustainability of most programs unless they are deeply rooted in local institutions. The uncertainty and dislocation caused by abrupt or violent political change can prevent a program from reaching its objectives. The loss of continuity resulting from frequent changes of leadership and policy can undermine, if not destroy, the long-term growth most programs require to reach sustainability. Even in relatively stable political environments, frequent turnover in political leadership in key programs can be disruptive. Programs operating in such environments should have realistic expectations about national support.

11.2 Economic Context

A program requires a stable economic environment. An economic crisis presents special problems for development program. Economic shocks or dislocations can come in many forms, and when severe, they can overshadow all other influences. Some examples include high rates of inflation, chronic foreign exchange shortages, low or falling world market prices, stagnating levels of general economic growth, and economic dislocations resulting from severe natural disasters. While any of these problems would be troublesome to programs in even the strongest of economies, they can be devastating in an economic system that is fragile. In Germany's analysis, where finance was cited as distinctive for sustainability, it was noted that "finances should be seen in direct connection with the capital situation in the country that, for example, can suffer drastic restrictions through IMF impositions." From a longer term perspective, the origins of such financial problems are rooted in inappropriate national economic policies that distort markets and cause disequilibrium, rather than in the stabilization and structural adjustment policy reforms that eventually become necessary.

11.2.1 Level of Development

A favorable world economic environment and sound domestic economic policies are important to the sustainability of any program. Unless the national economy provides a secure basis for underwriting future costs, no amount of good intentions or binding agreements with donors can ensure the actual availability of resources. This is not to imply that projects should not be

carried out in countries experiencing financial crisis. Obviously, the poorer the country, the greater the need. What this does indicate is that economic crises can create special problems that require special actions. The donor must be realistic about the financial capacity of the developing country. This may mean scaling a project down or providing postproject support to bridge the crisis.

The structure of all assistance projects must reflect the unique setting in which they operate. Lower income developing countries differ from relatively higher income developing countries in several ways that can affect a development project. They generally have a lower level of institutional development, a lack of trained manpower, and a poor resource base. The poorer the country, the more attention must be directed to institutional development, appropriateness of technology, and absorptive capacity of the developing country's government. Most often this will mean a project that is less complicated, ambitious, and expensive than one that might be attempted in a relatively more developed country.

11.2.2 Foreign Exchange Availability

Many donors cited balance of payments constraints as an important influence on sustainability. A balance of payments crisis can make a program unsustainable. When foreign exchange shortages become critical and chronic, programs that depend on imported supplies such as gasoline and medicines are threatened.

The balance of payments implications of the choice of technology was also highlighted by Canada's review. As a general rule, projects that minimize the burden on a country's balance of payments are more likely to be sustainable. The use of appropriate technologies, local resources, and indigenous organizations should mean less dependence on imported spare parts, replacement machinery, and technical expertise. The corollary is that capital-intensive, high-technology projects that are dependent on imported inputs are less likely to provide sustainable benefits, especially during periods of foreign exchange shortage.

11.2.3 Natural Disasters

Many countries have experienced natural disasters such as drought, earthquakes, or flooding. Such disasters not only cause immediate human suffering, which is often addressed through humanitarian assistance, but also result in longer term economic

dislocations. Under such circumstances, even successful programs can end abruptly.

A severe drought or other natural disaster can cause economic dislocation or shock that can completely dwarf all other influences on a program. Drought and the resulting famine can make any community-based component difficult to promote as food and water supplies become people's primary concern. The persistence of drought leads to economic hardships that threaten the viability of community support as the local economy weakens and reduces the ability of villagers to pay for services.

12. PROGRAM DESIGN AND EVALUATION REQUIREMENTS

12.1 Scope of Design and Evaluation Requirements

Donors make a series of choices about the selection, design, implementation, and evaluation of their development programs. This section discusses some of the choices and techniques that can favor sustainability and then looks at the need to more closely incorporate sustainability factors into the project evaluation process.

12.2 Selection Decisions and Sustainability

12.2.1 Project Choices

One way donors can approach the issue of sustainability is to examine its relationship to several choices about projects over which they exercise varying degrees of control. In its review of sustainability, Norway offered examples of hypotheses or choices that could be tested to provide more guidance for sustainability. The results of the analysis of these questions would not be used to avoid problematic countries, sectors, or regions but rather to indicate where problems might be more serious. Project selection and design could then be adapted in a way that minimizes sustainability problems.

-- Choice of country. Projects in countries with chronic foreign exchange problems, high debt-service ratios, or little ability to increase tax revenues are likely to have more severe sustainability problems.

-- Choice of sector. Projects in some sectors are likely to be particularly prone to problems, such as recurrent cost financing in health and education projects, maintenance problems in transportation projects, or issues of political sensitivity in urban development projects.

-- Choice of region. Regions far from the main population centers may have difficulty recruiting and keeping staff and obtaining funds and supplies.

-- Choice of project within a sector. Projects aimed at disadvantaged groups are likely to have problems unless they have strong and sustained support among influential groups; projects with a long payback periods may have problems of financial sustainability.

-- Project design. Projects based on sophisticated technology are likely to require skills for operation and maintenance that are not readily available domestically. However, technology that is the least capital intensive among alternative choices may involve problems of recurrent cost funding owing to increased operating cost burdens on the developing country. Also, complex multicomponent designs may create insurmountable management problems.

Belgium has developed a useful project design approach for analyzing assumptions or hypotheses about conditions in a project's environment. The method differentiates between risks that are important but acceptable and those that are "fatal." In fatal-assumption cases, the chances for project success and sustainability are so poor that the project should not be undertaken. Differentiation is also made between important assumptions with acceptable, calculable risks, which do not necessarily demand a new project approach, and fatal assumptions, which are not only important and involve high risk, but which also demand another project design or approach.

This approach involves answering a series of questions about assumptions required for project success and sustainability, such as "Is it important?" and "How likely is it that it will occur?" For an assumption that is both important and not likely to occur, the third and final question is "Can the project be designed/redesigned to influence it?" If the answer is "yes," the project should go ahead, but if the answer is "no," it is a fatal assumption and the project should be dropped.

12.2.2 Nonproject Assistance

Assistance in forms other than project assistance is becoming an increasingly important part of many donors' portfolio. Many times when nonproject assistance is selected as the preferred instrument, sustainability is not a primary objective. Nevertheless, attention to critical areas can help improve effectiveness.

When comparing nonproject to project assistance, the World Bank noted that the issue of sustainability is clearer when projects are in productive sectors where the link between the project and output is close. "In the case of nonproject lending, the issue of sustainability is much less tangible conceptually and its assessment therefore primarily qualitative and judgmental." This is also true for projects that include objectives such as policy change or institutional development.

The World Bank's review of its structural adjustment lending program (defined by the World Bank as nonproject lending to support programs of policy and institutional change necessary to modify the structure of an economy so that it can maintain both its growth rate and the viability of its balance of payments in the medium term) revealed two main facets of the concept of sustainability: (1) whether the programs of policy and institutional change led to structural shifts in production necessary for sustained growth accompanied by a viable balance of payments situation, and (2) whether there was sufficient progress in creating the administrative and institutional framework necessary to sustain the process of policy reform.

It is interesting to note that the primary lessons reported from this experience are very consistent with the sustainability factors mentioned throughout this report. Namely, implementation of the intended reform measures took longer than anticipated, expectations for governments' administrative capacity to introduce reforms were overly optimistic and initial assessments were inadequate, and institutional development turned out to be a much longer process than envisaged.

Despite these difficulties, the World Bank concluded that the structural adjustment loan activities and related discussions have given development government officials a much better understanding of the nature of the structural problems and have focused their attention on the links among various policy instruments. World Bank experience shows that results have been best when the government's active participation was sought from the beginning in designing the program and formulating solutions. This finding is supported by another, which suggests that the

reform process is more likely to be sustained and the political commitment reinforced when a structural adjustment loan is made more in support of actions taken than on the basis of promised measures.

12.3 Design and Implementation Requirements Favoring Sustainability

12.3.1 Realistic Goals

Designers must set realistic goals. Every development project has one or more goals to achieve. These are the desired final outcomes of a project and are often stated very generally. A project's goals must not be overly ambitious in relation to the developing country's resources and absorptive capacity. Trying to do too many things simultaneously may result in doing none of them well. Failure to meet targets can be frustrating for both donors and host governments, and unrealistic targets soon become counterproductive. Project design should also strive to avoid unnecessary complexity. If activities are not firmly established and counterparts have not acquired the minimum level of competency required to carry them out, the activities will not be sustainable.

12.3.2 Project Duration

Closely related to the establishment of goals is the decision regarding the time given to implementers to achieve results. There is a pervasive tendency at the design stage to make unrealistic, optimistic projections regarding the time required to meet project goals. Of all the factors of sustainability, time, which was cited frequently by donors, emerges as one of the most crucial.

The duration of a project must be appropriate to the project's purpose, strategy, resource endowments, and expected outputs. It takes more time than most planners anticipate to introduce training, education, community participation, and related activities--all components of institutional development--in a developing country. If time spent on these activities is subtracted from the total life of the project, the project has only a relatively short time in which to institutionalize its activities and make them self-sustaining.

Meeting the physical targets of a project is only the first step. A project's initial demonstration of results is a necessary but not sufficient condition for sustainability. The project must take the next difficult step of shifting to the developing country the capability to continue project activities. Experience shows that the process is a long one, and trying to achieve it within the traditional 5-year project time frame usually guarantees failure.

Evaluations of United Nations Development Program projects found that project designers tended to underestimate the time required to achieve objectives. A minimum of 10-15 years is required to develop any degree of sustainable institutional capacity. Project designs with a "fast track" approach are not only out of phase with developing country realities but also virtually ensure that decisions will be made by technicians and bureaucrats, with limited involvement of participants. Donor participation in human resources development projects should be planned within a multiyear government program. Instead of initiating activities piecemeal and trying to coordinate them afterwards, donors should help developing country governments devise coherent, longer term strategies and reflect their commitment by multiyear financing.

12.3.3 Maintenance and Support Systems

The maintenance of project-supplied equipment is often given insufficient attention in the design stage and so becomes a major stumbling block to implementation. Equipment breakdown and lack of spare parts or of operating funds for gasoline and new tires were frequently cited as the cause for a project's failure to deliver drugs and other critical supplies. This becomes an even more serious constraint when transportation and delivery of services to remote areas are an essential part of the program.

An adequate transportation, maintenance, and commodity supply system is necessary for sustainability. In the review of its projects, Japan found that an inadequate budget for maintenance and the purchase of spare parts was the most frequently cited factor affecting sustainability, accounting for 30 percent of all problems. In addition to establishing these systems, projects must develop the developing country's capability to manage them once donor assistance ends.

12.3.4 Continuity

Several donors mentioned the role of continuity. When availability of funds is predictable, plans can be made and carried out. Stops and starts in the flow of financial assistance, personnel training, and other activities can disrupt project implementation. Continuity can be strengthened by a gradual, rather than abrupt, phasing out of donor personnel.

A Canadian evaluation of the Universities of Botswana, Lesotho, and Swaziland Phase III project emphasizes that scheduling periods of overlap between expatriate personnel and indigenous personnel after the latter returned from training was essential to the transfer of skills and technology. The period after project completion is also important. An evaluation of the Caribbean Basin Water Management project stated that project benefits are more likely to be sustained when the donor maintains a strong presence in the country after donor funding ends. Conclusions based on evaluation studies suggest that smaller, well-targeted follow-up projects (e.g., a spare parts project) that support achievement of long-term self-sufficiency enhance sustainability.

12.3.5 Flexibility

Flexibility appeared to be an important design quality in the short term. Projects must be able to adapt to unanticipated changes in their external environment if they are to remain sustainable. The sustainability of a number of projects was impaired by policy, economic, and institutional changes in the external environment to which the projects could not fully adapt. The experience of nearly every project reviewed that had achieved sustainability demonstrated some requirement for flexibility, coupled with a capacity to plan for anticipated changes in the environment. These included designing some form of permanent project mechanism, such as a monitoring and evaluation function, that is sensitive to shifts in the external environment. Competent managerial leadership is central to guiding project adaptations to changing circumstances.

12.3.6 Phased Design and Pilot Projects

Phased design and pilot projects are two design features that can be used to improve a project's prospects for sustainability.

It can be useful to view a project as a development process that passes through several stages before reaching maturity. An explicit recognition of these stages in the project design helps focus attention on the elements required for the project both to meet its immediate goals and to prepare a foundation for the next group of activities. Phased design recognizes that everything cannot happen simultaneously and that there are benefits in doing first things first. The phases may be incorporated within a single project or they may involve the original project and a follow-on project.

Another design issue to consider is that of scale. If a project that is eventually to be national in scope is first tested in one region, valuable experience can be gained. A pilot project enables implementation difficulties to be identified and corrected before the project is expanded on a national scale, thus resulting in great savings. The larger the final effort is to be, the more important a pilot approach becomes.

In the case of both phased design and pilot projects, the donor maintains some leverage. Funding can be disbursed in tranches that are contingent on the success of the preceding stage. When a pilot effort fails, serious questions must be asked and plans adjusted accordingly before the project is expanded.

12.4 Linking Evaluation and Sustainability

Evaluation can play an important role in ensuring the sustainability of projects, yet sustainability is often inadequately treated by evaluation teams.

Germany's report was indicative: "A comparison between the results of the DAC relevant project reports [29] and those of the second subtotal [23 predating the DAC questions] shows that the DAC questions have led to a more comprehensive treatment of the term "sustainability" [but] the questions have not yet opened up the term to its fullest extent.... Hardly any evaluation expert paid regard to the concrete question of sustainability after donor funding has ended."

Canada offered several reasons why sustainability was given full and direct treatment in less than half the project evaluations reviewed, despite its priority in the Canadian development program. First, many of the projects were designed as long as a decade ago, when sustainability had not yet emerged as a priority theme. In addition, many of the evaluations were mid-term evaluations or end-of-project evaluations that were conducted immedi-

ately after the project was completed; thus evidence of longer term sustainability had not yet emerged.

The United States, like most other donors, has always closely monitored and evaluated projects from implementation through project completion. However, evaluation reports have usually focused on how effectively funds were used during the project. This has also been the basis on which project implementers and designers have been rewarded. More recently, the United States has been addressing specific problems, such as recurrent cost recovery and institutionalization, that are critical to sustainability, but a more comprehensive and systematic approach to sustainability has not been introduced.

Denmark, based on 23 evaluation reports, concluded that the most important factor in applying the sustainability concept and improving evaluation work is the explicit incorporation of the concept in its project appraisals as well as its regular evaluation practices. Past practice has been to annex the issue of sustainability to the ordinary terms of reference, but sustainability has not figured in any central way in appraisal reports. In order to apply the sustainability concept, policies in this area must be clarified and criteria based on actual experience must be formulated. For example, policy should be clarified for cases in which the Danish International Development Agency is prepared to accept that a project is not economically sustainable. Moreover, some idea of how the project handover is going to take place should be formulated during early project phases, and then further developed during mid-term evaluations.

12.5 Current Efforts

The discussion has been limited, for the most part, to identification of the factors associated with sustainability and discussion of their influences. Almost all donors incorporate these factors into their design decisions in some way. As sustainability is given greater attention as a development objective, donors are increasingly agreeing on the need to systematically consider sustainability in all development projects and to make it one of the focal concerns in development cooperation.

12.5.1 Monitoring and Evaluation Systems

Donor agencies have established monitoring and evaluation systems for their projects. These systems provide the means for identifying problems of sustainability. In most instances, one

or more of the factors may be pinpointed in reviews of project implementation. What is less common is the more comprehensive approach that considers the full range of factors noted in the report in assessing projects for sustainability. This is manifest in the conclusion from donor reports that the question of sustainability had not been addressed. Growing sensitivity to the issue of sustainability is, however, resulting in changes in monitoring and evaluation scopes of work. The fact that DAC members expressly included questions on sustainability in their 1986 evaluations as a basis for their reports itself reflects significant progress in creating an awareness of the sustainability issue.

Germany concluded from its review of 52 project evaluations that "the term 'sustainability' should be defined more precisely, the connection between cause and effect should be studied in more detail, and a binding definition for evaluation work should be made. The concept of sustainability should, according to its special significance, be integrated more strongly into project appraisal, planning and management. This is a necessary precondition for a more intensive treatment of this aspect within evaluation work."

12.5.2 Early Warning System

Most donors have systems for tracking project performance. These systems can be employed to anticipate issues of sustainability. For example, the Commission of the European Communities (CEC) has been experimenting with an "early warning system" for identifying the emergence of problems that may affect sustainability. The heart of this sustainability management system is a list of indicators that closely corresponds to the categories of factors discussed in this report. For each indicator, evaluation teams are required to report on the "intended situation after project completion" and the "progress situation to-date." The former requirement forces precision in thinking about what the project is ultimately expected to accomplish. The specification of intended and to-date situations for each indicator thus constitutes a standardized rating scheme that can be used to make basic judgments about each critical component of a program.

For each indicator, an explicit "traffic signal" assessment of sustainability status is given: green light, satisfactory; yellow light, serious problems that can be overcome; and red light, grave problems, indicating that the project is in danger of failing. If red or yellow ratings are assigned, a more detailed assessment of program performance is required, including

indications of major difficulties and proposals for specific corrective action.

The final step in this process is the global assessment of sustainability. This represents the summary professional judgment of overall performance to date in relation to future sustainability. The global rating, along with comments and proposals for action, is placed on a cover sheet to highlight the findings. The advantage of this signal system is that it provides continuity and consistency in judging programs and clearly defines responsibility for measures to be taken. As the CEC's review pointed out, "The question whether a project will be viable is asked right from the beginning of the project life, i.e., the identification of the first project idea, and runs through the whole project cycle, including notably the feasibility study, appraisal/financing, monitoring and evaluations."

Without prescribing a particular system, the essential point is the importance of having a systematic procedure for tracking sustainability considerations in donor reviews of program performance.

12.5.3 Collaboration With Developing Countries

An essential part of efforts to improve the sustainability of development programs is in close collaboration with developing country counterparts at all stages in a project's evolution. The creation of sustainable programs, building on a donor's project interventions, requires a constructive environment of developing country commitment to policies and practices that support sustainability and broad beneficiary involvement. This can be achieved only by effective leadership within the developing country itself. An effective process of collaboration in support of this leadership is central to the achievement of sustainability.

APPENDIX A

FACTORS IN THE SUSTAINABILITY OF SOCIAL SERVICES

Objective: To develop a capability to sustain the benefits (results) generated by aid project interventions after assistance is terminated.

Factors Affecting Sustainability	Implementing Organization		
	National	Local Community and Private Voluntary Organizations	Private Enterprise
Commitment and Government Policies	Commitment of leaders and constituencies to objectives of program and to supportive policies.	Commitment to objectives by local officials, leadership, and constituencies. Government support for local organization and initiatives.	Comparability of objectives and types of services with market opportunity for private firms. Appropriate government regulations and policies encouraging sustainable private enterprise.
Management and Organization	Managerial leadership for defining objectives. Constituency building and program administration; organizational capacity (staff, logistics, budget/fiscal, training, management information systems) to carry out program.	Local leaders and managers organized; beneficiaries involved in planning and implementation; local organizational capacities developed to implement and maintain services. Fund raising from multiple sources required.	Local entrepreneurial leadership encouraged to develop private service organizations.
Finance	Government budget and foreign exchange allocations to cover operations, maintenance, and depreciation; phased in over life of project.	Community contributions for facilities and operating costs raised; user fees established.	Capital resources available for investment in services; prices of service cover costs with profit.
Technology	Capacity to select, adapt, review, and maintain program technologies, including adaptive research.	Communities capable of operating and maintaining technology, and have a role in technology selection.	Marketability of technology.
Socioculture	Program objectives and technologies acceptable; gender roles defined; information systems keep management in touch with beneficiary perspectives.	Women involved in program and their roles and responsibilities identified. Local acceptance of technology; local "ownership" of program.	Local entrepreneurs adapt to program services. Market research to determine local needs and desire for services; advertising to generate demand.
Environment	Policies and regulations for protecting environment.	Local participation and self-interest in protecting environment promoted.	Long-term perspective of private firms encourages cost of environmental protection in investment and operation and maintenance budgets.
Project Design and Implementation	Realistic projections of project objectives, time schedules, and organizational capabilities. Project phasing, flexibility in balancing immediate goals and long-term institution building; monitoring and evaluation to track performance and impact.	Pilot projects for generating participation and learning what works; replication feasibility tested.	Support included for local enterprise development in service activities that have potential for profitability.
External Influences	Political stability and democratic society; international and domestic market economy support economic growth, access to international technological developments and other donor support.	Local political stability and community participation in decision-making; economic growth opportunities able to provide employment and income that will sustain local social services.	Competitive market economy.

Source: Agency for International Development.

APPENDIX B

AGENCIES WITH EVALUATION OFFICES
PARTICIPATING IN THE DAC SUSTAINABILITY STUDY

Australia
Australian Development Assistance Bureau (AIDAB)

Canada
Canadian International Development Agency (CIDA)

Commission of the European Communities (CEC)

Denmark
Danish International Development Agency (DANIDA)

France
Caisse Centrale de Cooperation Economique

Germany
Federal Ministry for Economic Cooperation

Japan
Economic Cooperation Bureau, Ministry for Foreign Affairs

Norway
Ministry of Development Cooperation

Sweden
Swedish International Development Authority (SIDA)

United Kingdom
Overseas Development Administration (ODA)

United States
Agency for International Development (A.I.D.)

World Bank

Asian Development Bank

Inter-American Development Bank

United Nations Development Program